

Midwestern Hydraulic Engineering Conference

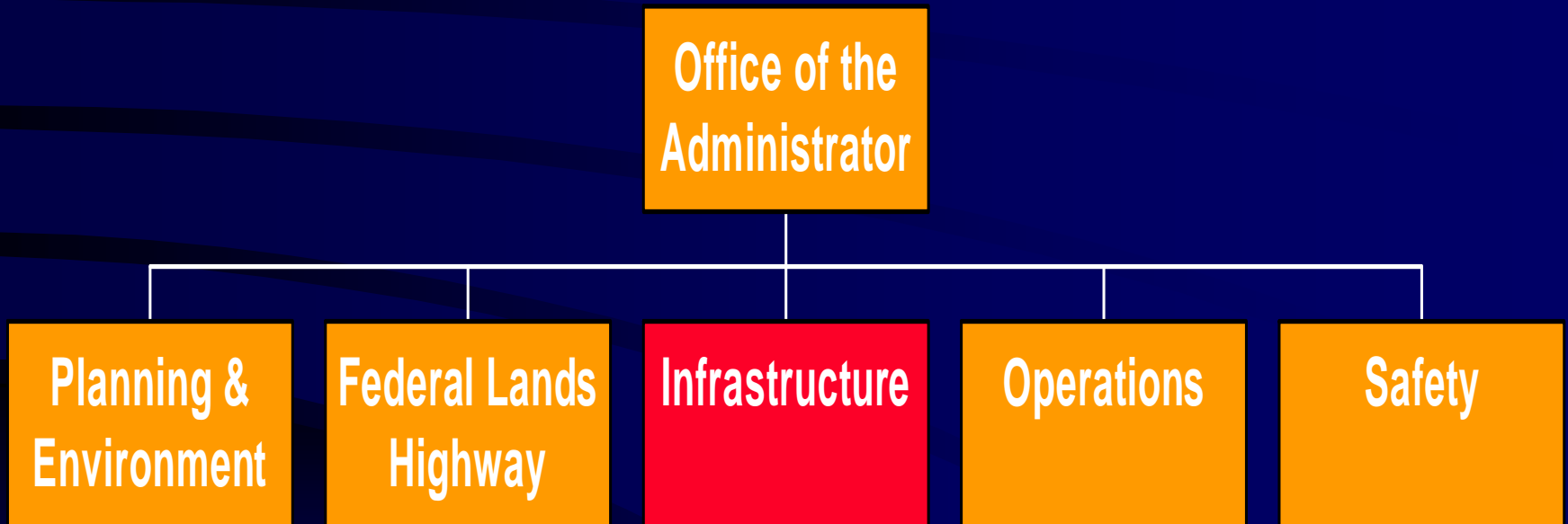
FHWA Headquarters Update

Jorge E. Pagán-Ortiz

Senior Hydraulics Engineer

Washington, D.C.

FHWA CORE BUSINESS UNITS



OFFICE OF INFRASTRUCTURE



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graph TD; A[OFFICE OF INFRASTRUCTURE] --> B[ASSET MANAGEMENT]; A --> C[PROGRAM ADMINISTRATION]; A --> D[PAVEMENT TECHNOLOGY]; A --> E[BRIDGE TECHNOLOGY];
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**ASSET
MANAGEMENT**

**PROGRAM
ADMINISTRATION**

**PAVEMENT
TECHNOLOGY**

**BRIDGE
TECHNOLOGY**

Office of Bridge Technology

www.fhwa.dot.gov/bridge

- Functions:
 - Legislation / Program Development
 - **Review, Assistance & Approval of Unusual Bridges & Structures**
 - National Bridge Inspection Standards & Inventory (NBI)
 - Bridge Replacement Program



Office of Bridge Technology

www.fhwa.dot.gov/bridge

Technology for:

- **Hydraulics of Bridge Waterways & Culverts**
- **Foundations & Retaining Walls**
- **Seismic Events**
- **Bridges**
- **Tunnels**



August 26, 2003

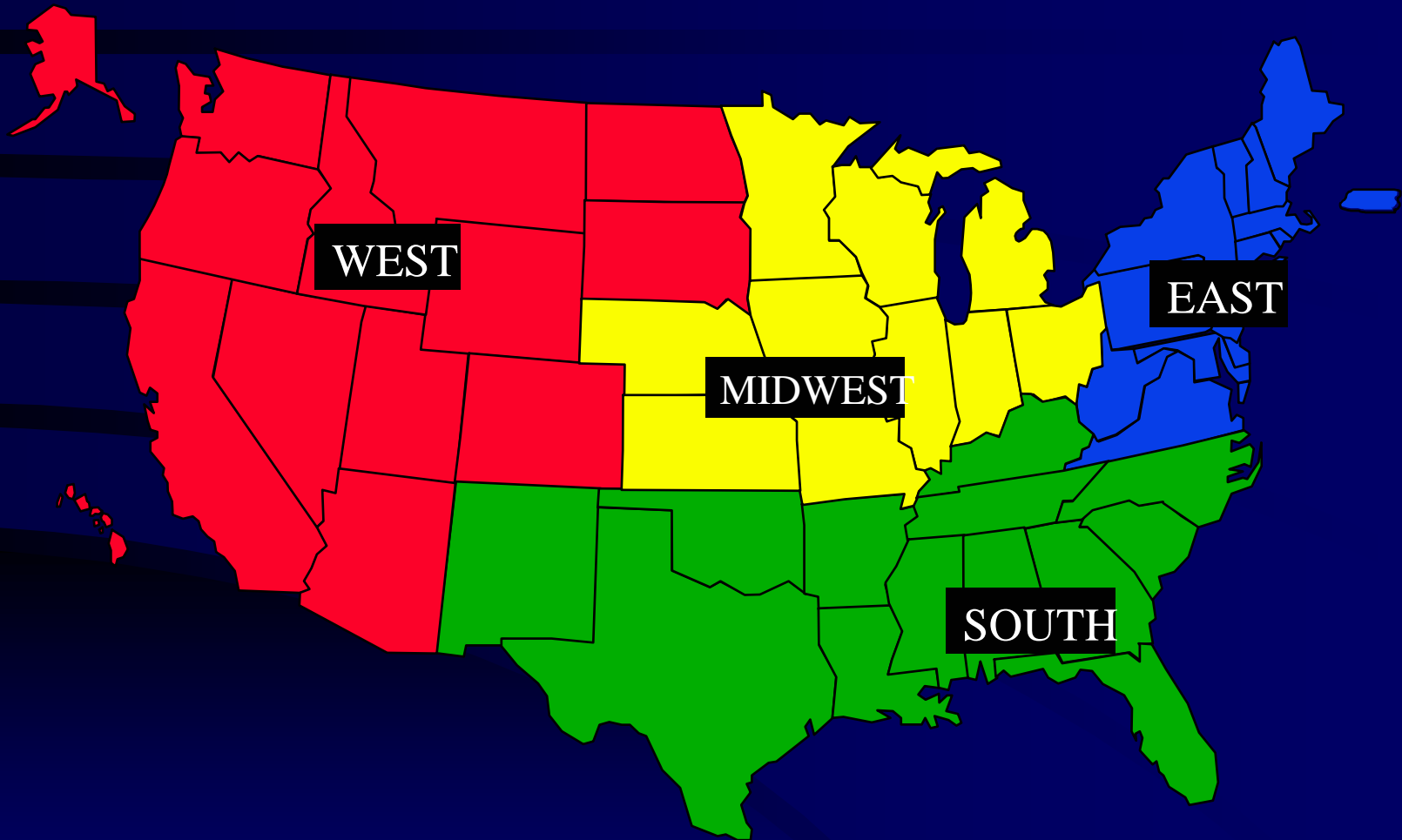
Infrastructure CBU Supports Resource Center & Division Offices

- Project policy questions
- General program initiatives
- Shares/provide technical expertise
- Assists with Technology Deployment



Resource Center

Four Locations



Resource Center

- One Resource Center - - Four Locations
- Technical Teams for 11 Disciplines

Grouping of Technical Teams

- Group 1: Planning, Environment, Air Quality
- Group 2: Structures, Hydraulics and Geotechnical
- Group 3: Operations, Safety and Highway Design
- Group 4: Construction and Project Management, Pavements and Materials
- Civil Rights and Finance - - to be determined

FHWA

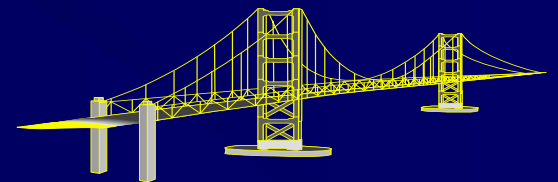
HYDRAULICS TEAM

- Hydraulics Executive Team
 - Jorge E. Pagán-Ortiz, Leader, National Hydraulics Team
 - Sterling Jones
 - Dr. Larry Arneson
 - Joe Krolak
- Resource Center – Hydraulics and Geotechnical Team
 - Peter Osborn, Leader
 - Cynthia Nurmi, Atlanta
 - Dan Ghere, Olympia Fields
 - Dr. Larry Arneson, San Francisco (Lakewood)
 - Vacant, Baltimore
- Federal Lands Highway Division
 - Brian Beucler, Eastern
 - Bart Bergendahl, Central
 - Mark Browning, Western
- Division Office
 - Steve Toillion, Kansas

FHWA HYDRAULICS ACTIVITIES

August 26, 2003

HIBT



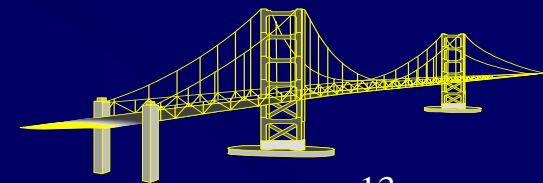
HYDRAULICS MANUALS (Completed)

- HDS 2, Highway Hydrology
- HDS 5, Hydraulic Design of Highway Culverts
- HDS 6, River Engineering for Highway Encroachments

*** PDFs available at isddc.dot.gov**

HYDRAULICS MANUALS (New Circulars)

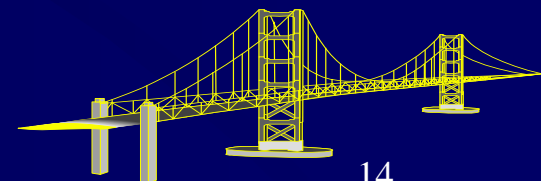
- HEC 25, *Tidal Hydrology, Hydraulics and Scour at Bridges* ('03-'04)
- HEC 26, *Hydraulics of Fish Passage* ('04-'05)



HYDRAULICS MANUALS

(Updates and Unit Conversion)

- **HEC 9, *Design of Debris Control***
 - Completion delayed to Summer '04
- **HEC 14, *Hydraulic Design of Energy Dissipators for Culverts and Channels***
 - To begin CY '03
- **HEC 15, *Design of Roadside Channels with Flexible Linings***
 - To begin CY '03



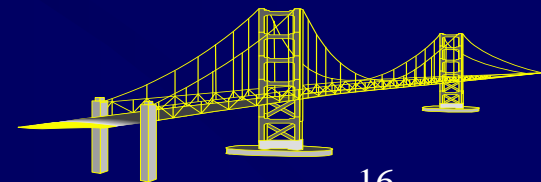
HYDRAULICS MANUALS

(Future Updates)

- **HEC 11, based on NCHRP 24-23**
- **HEC 18, based on NCHRP 24-14, 24-20, 24-25 & 24-26**
- **HEC 20, based on NCHRP 24-16**
- **HEC-23, based on NCHRP 21-07, 24-7(2) , 24-18**
- **HDS 1, Hydraulics of Bridge Waterways**

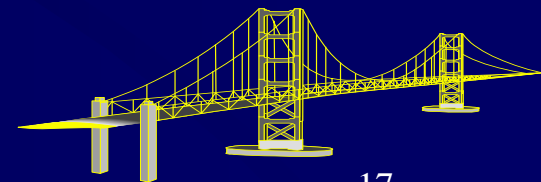
HYDRAULICS SOFTWARE

- **CAESAR Enhancements**
- **SAM**
- **WMS/SMS Licenses for 5 Years**
- **FLO1DH Interface**
- **FLO2DH Enhancements**
- **BRISTARS Enhancements**
- **HYDRA Junction Loss Enhancements**



NHI COURSE UPDATES COMPLETED

- 135010, River Engineering
- 135027, Urban Drainage Design
- 135028, Pump Station Design
- 135041, HEC-RAS



NHI COURSE UPDATES

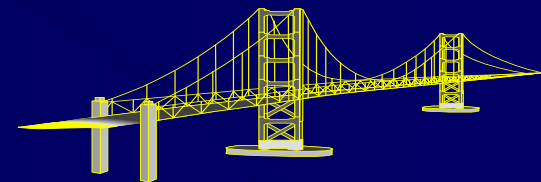
COMPLETED

- **135046, Stream Stability & Scour**
- **135047, Scour - - Inspectors Module**
- **135048, Countermeasures**
- **135067, Practical Highway Hydrology**

NHI COURSE UPDATES

COMPLETED

- 135056, Hydraulic Design of Culverts
- 135065, Introduction to Highway Hydraulics
- 135071, FESWMS using SMS
- 135080, WMS Hydrologic Design



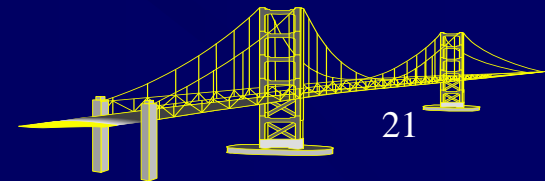
NHI COURSE UPDATES

NEW COURSE

- **135081, Introduction to Hydraulic Software**

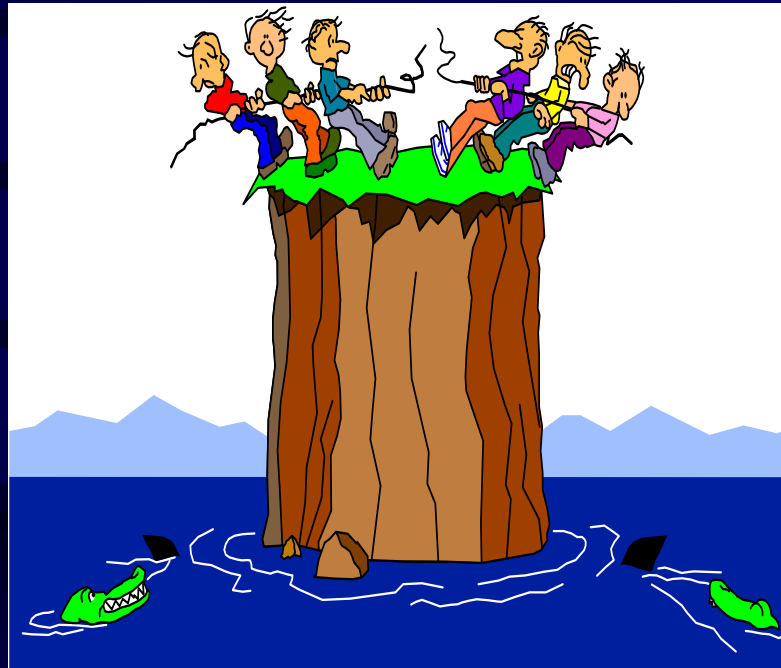
NHI COURSE NEEDED

- 135082, Tidal Hydrology & Hydraulics
- 135083, Tidal Software
- 135084, Sediment Transport Modeling



Partnerships with Other Agencies & Organizations

FHWA >



< State DOTs

< AASHTO

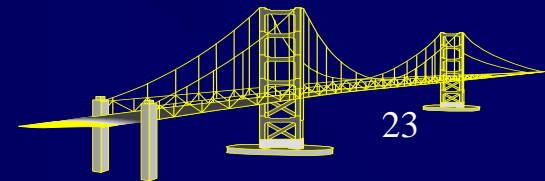
< TRB

< Local Agencies

< Federal Agencies

AASHTO Task Force

- **Chair:** Raja Veeramachaneni, MDSHA
- **Vice Chair:** Barry Newman, PADOT
- **Secretary:** Jorge E. Pagán-Ortiz, FHWA
- **Past Chair:** Merrill Dougherty, INDOT



AASHTO Task Force Activities

- Highway Drainage Guidelines
1999 Metric - 2003 Dual
- Model Drainage Manual
1999 Metric - 2003 Dual
- New guidelines and enhancements
 - **groundwater hydraulics, hydroplanning**
 - **organization and useability of MDM and HDG**

Problem Statements Funded by NCHRP

- 20-07, Research needs on scour
- 24-24, Criteria for selecting hydraulics models
- 24-25, Risk-based guidelines for determining need for investigation of unknown bridge foundations
- 24-26, Effects of debris on pier scour
- XX-XX, Time rate of scour at wide & skewed bridge piers

Problem Statements for 2005

- Task Force prioritized 14 problem statements in May 2003
 - will submit first 7 to NCHRP
- Minutes will be posted at:
 - www.fhwa.dot.gov/bridge/hyd.htm

TRB Committee A2A03

Hydrology, Hydraulics and Water Quality

- Chair:
Brian Roberts, Water Resources Learning Center
- Hydrology Subcommittee:
Will Thomas, Michael Baker, Jr. Inc.
- Hydraulics Subcommittee:
Sterling Jones, FHWA
- Water Quality Subcommittee:
John Sansalone, LSU

TRB A2A03

Activities

- Organizing sessions and reviewing technical papers for January 2004 TRB meeting in Washington, D.C.
- Prioritized problem statements from each subcommittee in July 2003

Questions?

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